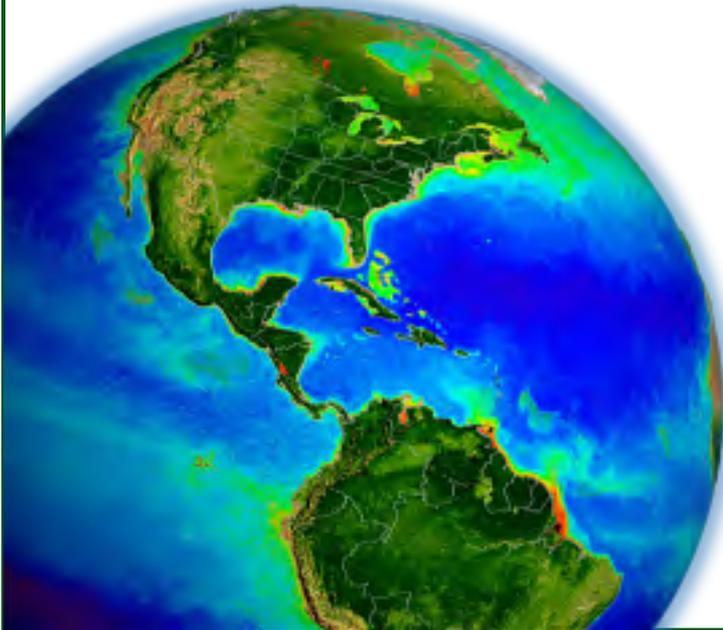


# SeaWiFS Calibration Update

Fred Patt

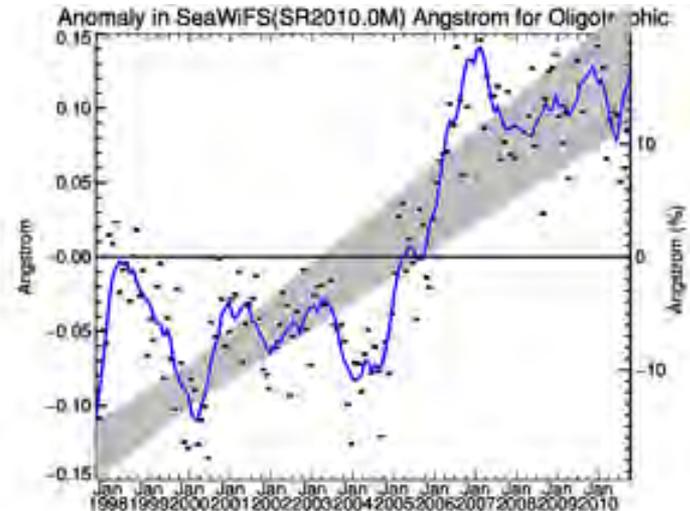
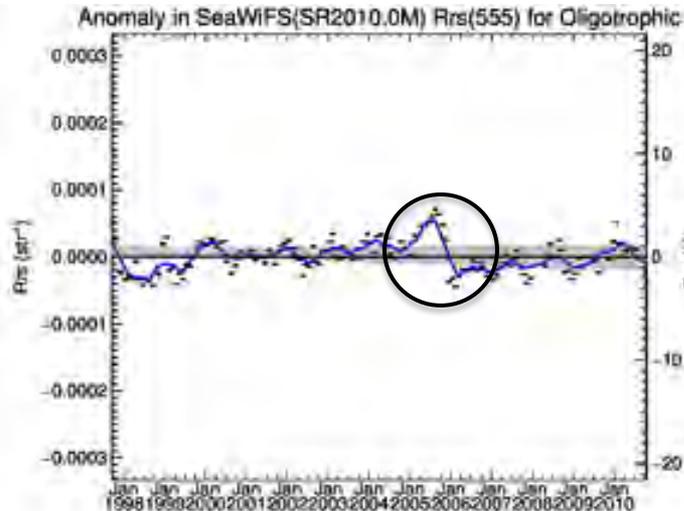
*a story of less than one digital count*



MODIS/VIIRS ST Meeting  
Silver Spring, MD, May 2015

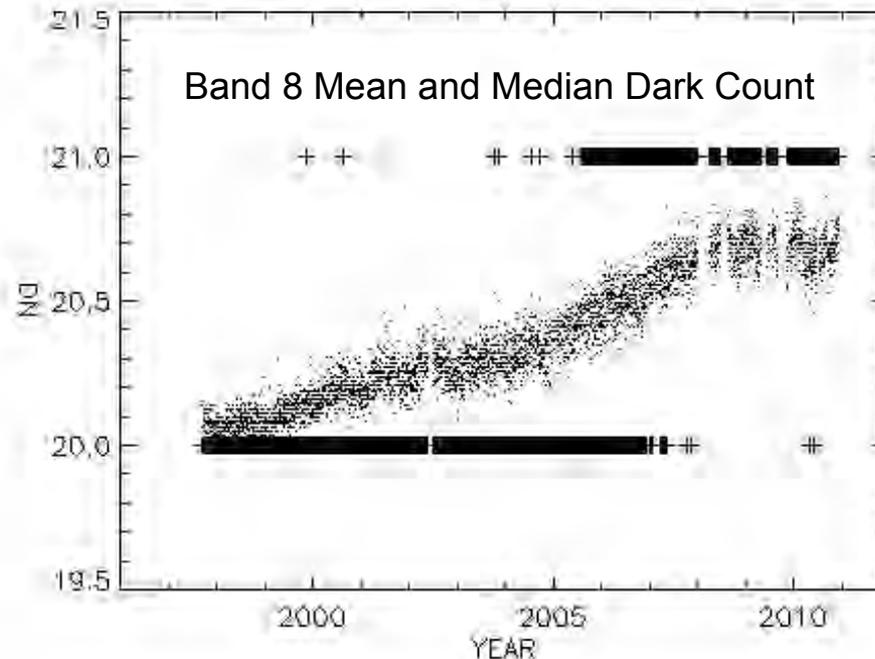
# The Problem

- The SeaWiFS radiometry has shown remarkable overall stability over the mission (1997 – 2010).
  - The temporal response has been based on the lunar calibration.
- There have been persistent artifacts in multiple parameters near the 2005 – 2006 transition in the data from the last reprocessing (2010). Past efforts to determine and correct the cause of this were unsuccessful.
- The OBPG took a fresh look at the problem in 2014.



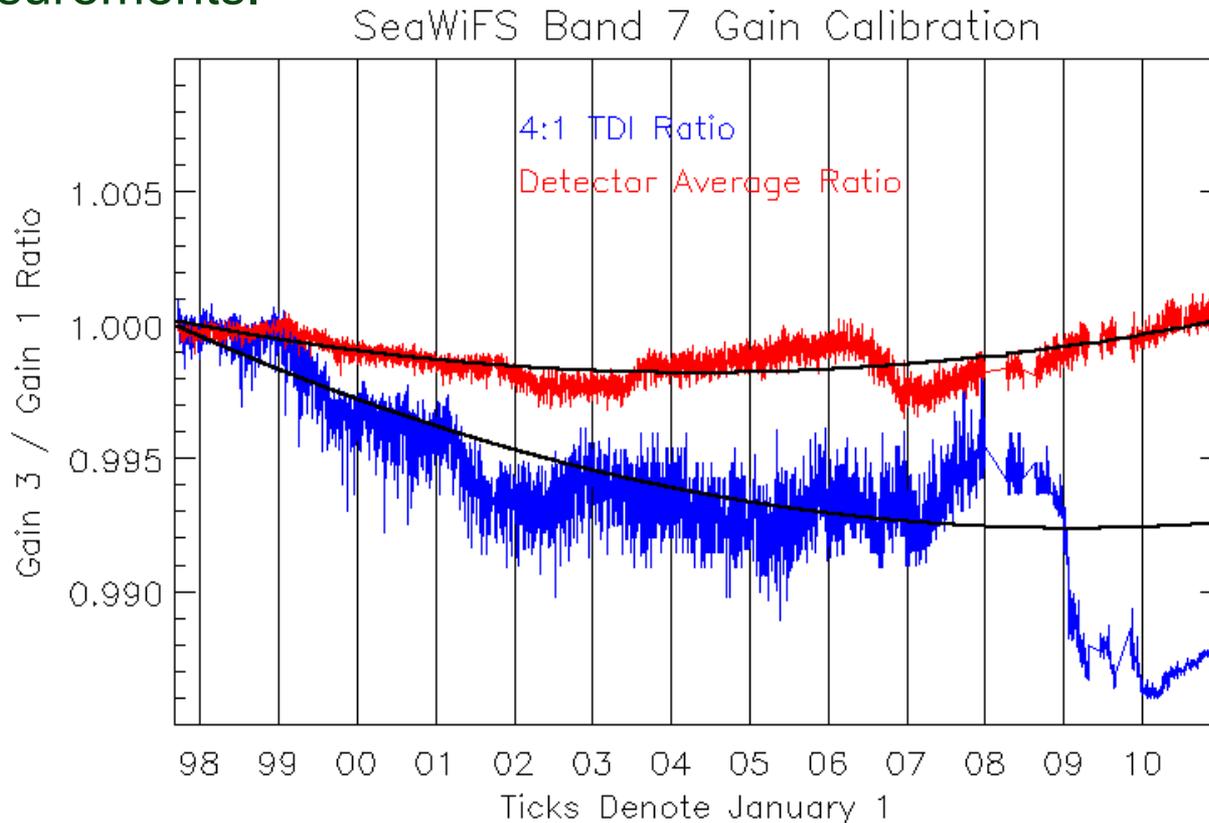
# The Cause

- The SeaWiFS Dark Restore value is provided as a single sample per band and scan during Earth observation.
- The calibration processing implemented the dark restore processing as the median of all of the samples in a granule for each band.
- Examination of the dark restore counts over the mission showed that the values changed by less than one count in all bands.
- The median value changed by one count in some bands and none in others.



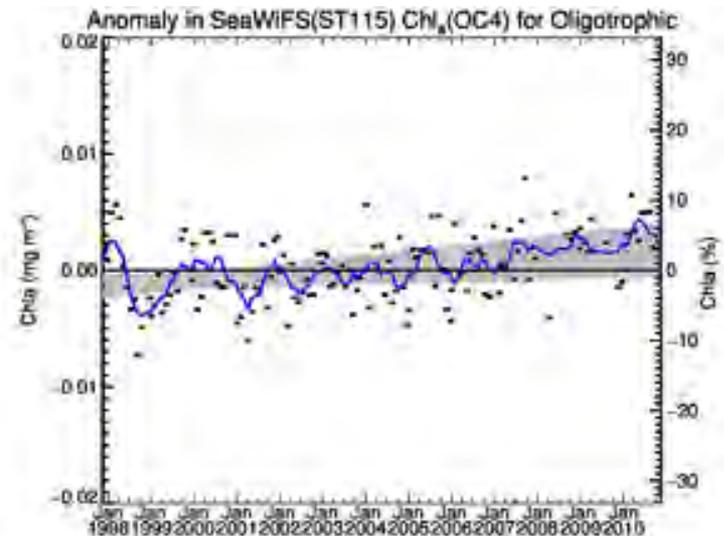
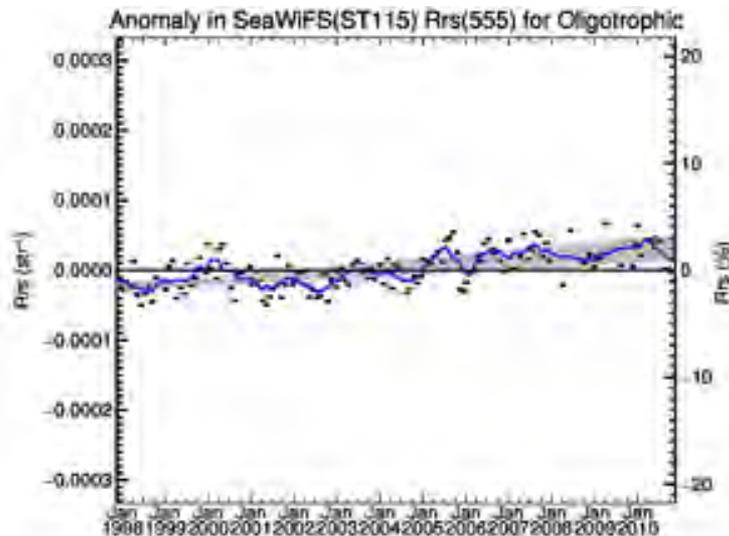
# Band 7 Gain 3 Drift Correction Update

- For Band 7, the lunar calibration gain (3) has shown a mission-long drift relative to the Earth view gain (1).
- Following the re-analysis of the dark restore, the Band 7 gain 3 drift was also re-analyzed using the average of the individual detector measurements.



# Updated SeaWiFS Calibration

- The dark restore based on the intergain calibration (IGC) data analysis was incorporated into the calibration processing as a set of look-up tables.
- The lunar calibration data were re-analyzed using the dark restore LUTS.
- The Band 7 Gain 3 correction was updated using a quadratic fit to the re-analyzed gain ratio.



**QUESTIONS?**